

STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Greg Denton

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley

TDEC-WPC Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

Lab ID: K00002379

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

Billing Code:

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002379001

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

EMORY012.1RO

Date/Time Collected:

05/14/2009 09:55

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

8.25

pH Units

uMHO

Chlorine, residual:

Conductivity:

57 18.02

Temperature: **Dissolved Oxygen: 10.06**

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	13	mg/L	3.8	10	M Chen	5/19/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	19	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	5/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379002

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

EMORY002.1RO

Date/Time Collected:

05/14/2009 10:52

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.52

pH Units

Chlorine, residual:

Conductivity:

53

uMHO

Temperature:

18.14

Dissolved Oxygen: 9.72

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	16	mg/L	3.8	10	M Chen	5/19/2009

TEST: Hardness, Calcium	ME ⁻					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	18	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009

TEST: Residue, Suspended	ME ⁻					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	5/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit

K00002379003

Project Name:

TVA-Ash Spill

Sample Description:

Approx. 100' d/s from middle dredge point

Sampler Project Name: TVA Ash Spill

Project Site No.:

2A

Station No.:

Dredge Plume

Date/Time Collected:

05/14/2009 11:05

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.30

pH Units

Chlorine, residual:

Conductivity:

54

uMHO

Temperature:

17.81

Dissolved Oxygen: 9.49

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	17	mg/L	3.8	10	M Chen	5/19/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	20	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009

TEST: Residue, Suspended	ME	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	16	mg/L	10	10	A Peeples	5/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379004

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA Ash Spill

Project Site No.:

2B

Station No.:

EMORY001.9RO

Date/Time Collected:

05/14/2009 11:18

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:**

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	15	mg/L	3.8	10	M Chen	5/19/2009

Field Determinations

Dissolved Oxygen: 9.39

Chlorine, residual:

Conductivity:

Temperature:

7.11

51

17.43

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	16	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	5/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379005

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA Ash Spill

Project Site No.:

3

Station No.:

EMORY001.7RO

Date/Time Collected:

05/14/2009 11:26

Sampler's Name: County:

Geoff Klein **ROANE - 73**

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code:

327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Alkalinity, Total	otal METHOD: EPA 310.2						
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Total Alkalinity	63	mg/L	3.8	10	M Chen	5/19/2009	

Field Determinations

Dissolved Oxygen: 9.32

Chlorine, residual:

Conductivity:

Temperature:

7.18

65

17.25

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	58	mg/L	0.7	1	P Leathers	5/19/2009	

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL MQI		ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009	

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	5/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379006

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA Ash Spill

Project Site No.:

5

Station No.:

CLINC002.3RO

Date/Time Collected:

05/14/2009 11:39

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:**

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.65

pH Units

uMHO

Chlorine, residual:

Conductivity: Temperature: 186

15.60

Dissolved Oxygen: 10.25

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total METHOD: EPA 310.2							
ANALYTE	RESULT	ANALYZED BY:	DATE				
Total Alkalinity	87	mg/L	3.8	10	M Chen	5/19/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	76	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable METHOD: SM 2540F							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009	

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	5/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379007

Project Name:

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Clinch River TVA Discharge Point

Project Site No.:

5A

Station No.:

KingAshOutF2

Date/Time Collected:

05/14/2009 11:47

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20

Send Report To: **Agency Invoiced:**

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.52

pH Units

uMHO

Chlorine, residual:

Conductivity:

117 18.94

Temperature: Dissolved Oxygen: 9.28

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	41	mg/L	3.8	10	M Chen	5/19/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	41	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable METHOD: SM 2540F							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009	

TEST: Residue, Suspended METHOD: SM 2540D							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Suspended Solids	10	mg/L	10	10	A Peeples	5/15/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

Field Determinations

Dissolved Oxygen: 10.68

Conductivity:

Temperature:

7.72

228

12.96

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

Project Site No.:

Sampler Project Name: TVA Ash Spill

Station No.:

Date/Time Collected:

CLINC004.5RO 05/14/2009 12:03

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	110	mg/L	3.8	10	M Chen	5/19/2009	

TEST: Hardness, Calcium	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	86	mg/L	0.7	1	P Leathers	5/19/2009

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	5/15/2009	

TEST: Residue, Suspended METHOD: SM 2540D							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Suspended Solids	U	mg/L	10	10	A Peeples	5/15/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



STATE OF TENNESSEE DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

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TDEC-WPC Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

Lab ID: K00002379

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

Billing Code:

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002379001

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

1

Date/Time Collected:

EMORY012.1RO 05/14/2009 09:55

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville TDEC-WPC

Billing Code: Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

8.25

pH Units

Chlorine, residual:

Conductivity:

57

uMHO

Temperature: **Dissolved Oxygen: 10.06**

18.02

mg/L

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	05/15/2009				S Ufegbu	5/15/2009	

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL.	MQL	ANALYZED BY:	DATE	
Iron	150	μg/L	2.9	10	A Wilson	5/26/2009	

TEST: ICP-MS	ME"	THOD: EPA 20	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Aluminum	74	μg/L	6.4	10	A Wilson	5/23/2009	
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009	
Arsenic	U	μg/L	0.93	5	A Wilson	5/23/2009	
Barium	19	μg/L	2.5	5	A Wilson	5/23/2009	
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009	
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009	
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009	
Cobalt	0.19J	μg/L	0.04	1	A Wilson	5/23/2009	
Copper	3.2	μg/L	0.38	1	A Wilson	5/23/2009	
Lead	0.19J	μg/L	0.10	1	A Wilson	5/23/2009	
Manganese	24	μg/L	0.42	1	A Wilson	5/23/2009	
Nickel	0.86J	μg/L	0.25	1	A Wilson	5/23/2009	
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009	
Silver	U	μg/L	0.03	0.25	A Wilson	5/27/2009	
Thallium	0.071J	μg/L	0.03	1	A Wilson	5/23/2009	
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009	
Zinc	4.7J	μg/L	1.9	5	A Wilson	5/23/2009	

K00002379001

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

1

Station No.:

EMORY012.1RO

Date/Time Collected:

05/14/2009 09:55

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency:

TDEC-WPC 327.34-20

Billing Code: Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

57

pH Units

uMHO

mg/L

Chlorine, residual: Conductivity:

Field Determinations

18.02

8.25

Temperature: Dissolved Oxygen: 10.06

Other:

Flow:

CFS

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.04J	μg/L	0.029	0.2	A Bass	5/20/2009
		F9	0,020	<u> </u>	71 5400	0/20/2

J - Estimated value between MDL and MQL MDL - Method Detection Limit MQL - Method Quantitation Limit

K00002379002

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

2

Station No.:

EMORY002.1RO

Date/Time Collected:

05/14/2009 10:52

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.52

pH Units

uMHO

Chlorine, residual:

Conductivity:

53 18.14

Temperature:

Dissolved Oxygen: 9.72

mg/L

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	05/15/2009				S Ufegbu	5/15/2009

TEST: ICP	ME	ΓHOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	270	μg/L	2.9	10	A Wilson	5/26/2009

TEST: ICP-MS	ME ⁻	THOD: EPA 20	METHOD: EPA 200.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	180	μg/L	6.4	10	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	U	μg/L	0.93	5	A Wilson	5/23/2009
Barium	23	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.27J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	0.99J	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.27J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	60	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.0	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009
Silver	U	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	0.040J	μg/L	0.03	1	A Wilson	5/23/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	3.9J	μg/L	1.9	5	A Wilson	5/23/2009

K00002379002

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

Project Site No.:

2

Station No.:

EMORY002.1RO

Date/Time Collected:

05/14/2009 10:52

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

U

Received By:

TEST: Mercury

ANALYTE

Mercury

E McCrary

METHOD: EPA 245.1 MQL MDL ANALYZED BY: **RESULT** UNITS DATE 0.029 0.2 μg/L A Bass 5/20/2009

Field Determinations

Dissolved Oxygen: 9.72

Chlorine, residual:

Conductivity:

Temperature:

:Ha

Other:

Flow:

7.52

53

18.14

pH Units

uMHO

mg/L

CFS

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379003

Project Name:

TVA-Ash Spill

Sample Description:

Approx. 100' d/s from middle dredge point

Sampler Project Name: TVA Ash Spill

Project Site No.:

2A

Station No.:

Dredge Plume

Date/Time Collected:

05/14/2009 11:05

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.30

pH Units

Chlorine, residual:

Conductivity:

54

uMHO

Temperature:

17.81

Dissolved Oxygen: 9.49

mg/L

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	05/15/2009				S Ufegbu	5/15/2009

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	440	μg/L	2.9	10	A Wilson	5/26/2009	

TEST: ICP-MS	ME ⁻	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	610	μg/L	64.0	100	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	2.5J	μg/L	0.93	5	A Wilson	5/23/2009
Barium	38	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	0.12J	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.59J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	2.7	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.96J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	72	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.7	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	. 5	A Wilson	5/23/2009
Silver	U	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	0.070J	μg/L	0.03	1	A Wilson	5/23/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	4.8J	μg/L	1.9	5	A Wilson	5/23/2009

K00002379003

Project Name:

TVA-Ash Spill

Sample Description:

Approx. 100' d/s from middle dredge point

Sampler Project Name: TVA Ash Spill

Project Site No.:

2A

Station No.:

Dredge Plume

Date/Time Collected:

05/14/2009 11:05

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To:

Agency Invoiced:

327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

TEST: Mercury

E McCrary

B.A	-	- 11	_	_

METHOD: EPA 245.1 UNITS

μg/L

ANALYTE RESULT U Mercury

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

U - Undetected

Field Determinations

7.30 :Ha

Chlorine, residual:

Conductivity:

54

uMHO

pH Units

DATE

5/20/2009

Temperature:

17.81

mg/L

Dissolved Oxygen: 9.49 Other:

Flow:

MDL

0.029

MQL

0.2

CFS

ANALYZED BY:

A Bass

K00002379004

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA Ash Spill

Project Site No.:

2B

Station No.:

EMORY001.9RO

Date/Time Collected: Sampler's Name:

05/14/2009 11:18

County:

Geoff Klein ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville TDEC-WPC

Billing Code: Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

05/15/2009

Received By:

Digestion Metals

E McCrary

TEST: Digestion Metals	ME.	THOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

Field Determinations

Dissolved Oxygen: 9.39

Chlorine, residual:

Conductivity:

Temperature:

pH:

Other:

Flow:

7.11

51

17.43

S Ufegbu

pH Units

uMHO

mg/L

CFS

5/15/2009

TEST: ICP	ME	THOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	280	μg/L	2.9	10	A Wilson	5/26/2009

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	. 180	μg/L	6.4	10	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	U	μg/L	0.93	5	A Wilson	5/23/2009
Barium	26	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	Ŭ	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.30J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	1.9	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.32J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	55	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.1	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009
Silver	0.041J	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	U	μg/L	0.03	1 -	A Wilson	5/23/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	3.9J	μg/L	1.9	5	A Wilson	5/23/2009

K00002379004

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

2B

EMORY001.9RO Date/Time Collected: 05/14/2009 11:18

Sampler's Name:

County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

TEST: Mercury

E McCrary

METHOD:	EPA 245.1
	/ \ TO: I

Field Determinations

Dissolved Oxygen: 9.39

Chlorine, residual:

Conductivity:

Temperature:

7.11

51

17.43

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U .	μg/L	0.029	0.2	A Bass	5/20/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379005

Project Name:

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Emory River mile 1.7

Project Site No.:

3

Station No.:

EMORY001.7RO

Date/Time Collected:

05/14/2009 11:26

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73 Water

EFO:

Knoxville TDEC-WPC

Sampling Agency: **Billing Code:** Send Report To:

327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:**

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.18

pH Units

uMHO

Chlorine, residual:

Conductivity: Temperature: 65

17.25

Dissolved Oxygen: 9.32

Other:

Flow:

CFS

mg/L

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	05/15/2009				S Ufegbu	5/15/2009

TEST: ICP	CP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	300	µg/L	2.9	10	A Wilson	5/26/2009	

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	. 305	μg/L	64.0	100	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	Ü	μg/L	0.93	5	A Wilson	5/23/2009
Barium	33	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.40J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	2.8	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.55J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	51	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.6	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009
Silver	U	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	0.36J	μg/L	0.03	1	A Wilson	5/23/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	6.3	μg/L	1.9	5	A Wilson	5/23/2009

K00002379005

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA Ash Spill

Project Site No.:

3

Station No.:

EMORY001.7RO

Date/Time Collected:

05/14/2009 11:26

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

TEST: Mercury

E McCrary

METHOD: EPA 245.1

ANALYTE RESULT UNITS MDL MQL **ANALYZED BY:** DATE U 0.029 Mercury μg/L 0.2 5/20/2009 A Bass

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

U - Undetected

Field Determinations

pH:

7.18

pH Units

Chlorine, residual:

Conductivity:

65

uMHO

Temperature: 17.25

Dissolved Oxygen: 9.32

mg/L

Other:

Flow:

CFS

Project Name: TVA-Ash Spill Sample Description: Clinch River mile 2.3

Sampler Project Name: TVA Ash Spill

Project Site No.: 5

Station No.: CLINC002.3RO

Date/Time Collected: 05/14/2009 11:39

Sampler's Name: Geoff Klein County: ROANE - 73

Sample Matrix: Water EFO: Knoxville

Sampling Agency:TDEC-WPCBilling Code:327.34-20Send Report To:TDEC-WPCAgency Invoiced:TDEC-WPC

Priority Date:

Date/Time Received: 05/14/2009 13:55

Received By: E McCrary

Field Determinations pH: 7.65

Chlorine, residual:
Conductivity: 186 uMHO

pH Units

Conductivity: 186 Temperature: 15.60

Dissolved Oxygen: 10.25 mg/L

Other:

Flow: CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	* .	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals		05/15/2009	,			S Ufegbu	5/15/2009

TEST: ICP	ST: ICP METHOD: EPA 200.7							
ANALYTE		RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	†	300	μg/L	2.9	10	A Wilson	5/26/2009	

TEST: ICP-MS	WE	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	250	μg/L	64.0	100	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	U	μg/L	0.93	5	·A Wilson	5/23/2009
Barium	32	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.29J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	2.1	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.41J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	36	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.4	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009
Silver	U	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	0.060J	μg/L	0.03	1	A Wilson	5/23/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	3.2J	μg/L	1.9	5	A Wilson	5/23/2009

K00002379006

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

CLINC002.3RO

Date/Time Collected:

05/14/2009 11:39

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency:

TDEC-WPC

Billing Code: Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL.	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	5/20/2009

Field Determinations

Dissolved Oxygen: 10.25

Chlorine, residual:

Conductivity:

Temperature:

7.65

186

15.60

pH Units

uMHQ

mg/L

CFS

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379007

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA Ash Spill

Project Site No.:

5A

Station No.:

KingAshOutF2

Date/Time Collected:

05/14/2009 11:47

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

Field Determinations

pH:

7.52

pH Units

Chlorine, residual:

Conductivity:

117

uMHO

Temperature: Dissolved Oxygen: 9.28

18.94

mg/L

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	05/15/2009				S Ufegbu	5/15/2009	

TEST: ICP	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	380	μg/L	2.9	10	A Wilson	5/26/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	460	μg/L	64.0	100	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	U	μg/L	0.93	5	A Wilson	5/23/2009
Barium	37	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.43J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	4.2	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.66J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	46	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.5	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009
Silver	. U	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	0.060J	μg/L	0.03	1	A Wilson	5/23/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	4.5J	μg/L	1.9	5	A Wilson	5/23/2009

K00002379007

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA Ash Spill

Project Site No.:

5A

Station No.:

Date/Time Collected:

KingAshOutF2 05/14/2009

Sampler's Name:

11:47 Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville

Billing Code: Send Report To: TDEC-WPC 327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:**

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.029	0.2	A Bass	5/20/2009	

Field Determinations

Dissolved Oxygen: 9.28

Chlorine, residual:

Conductivity:

Temperature:

7.52

117

18.94

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002379008

Project Name:

TVA-Ash Spill

Sample Description:

pH: Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Field Determinations

Dissolved Oxygen: 10.68

Conductivity:

Temperature:

Other:

Flow:

7.72

228

12.96

pH Units

uMHQ

mg/L

CFS

Sampler Project Name: TVA Ash Spill

Project Site No.:

Station No.:

CLINC004.5RO

Date/Time Collected:

05/14/2009 12:03

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code: Send Report To: TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	05/15/2009				S Ufegbu	5/15/2009	

TEST: ICP	MET	METHOD: EPA 200.7				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	300	μg/L	2.9	10	A Wilson	5/26/2009

TEST: ICP-MS	METHOD: EPA 200.8					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	200	μg/L	6.4	10	A Wilson	5/23/2009
Antimony	U	μg/L	0.33	1	A Wilson	5/23/2009
Arsenic	U	μg/L	0.93	5	A Wilson	5/23/2009
Barium	34	μg/L	2.5	5	A Wilson	5/23/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/23/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/23/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/23/2009
Cobalt	0.29J	μg/L	0.04	1	A Wilson	5/23/2009
Copper	2.3	μg/L	0.38	1	A Wilson	5/23/2009
Lead	0.41J	μg/L	0.10	1	A Wilson	5/23/2009
Manganese	49	μg/L	0.42	1	A Wilson	5/23/2009
Nickel	1.7	μg/L	0.25	1	A Wilson	5/23/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/23/2009
Silver	· U	μg/L	0.03	0.25	A Wilson	5/27/2009
Thallium	U	μg/L	0.03	1	A Wilson	5/23/2009
Vanadium	Ū	μg/L	3.4	5	A Wilson	5/23/2009
Zinc	3.5J	μg/L	1.9	5	A Wilson	5/23/2009

K00002379008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Field Determinations

Dissolved Oxygen: 10.68

Conductivity:

Temperature:

7.72

228

12.96

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

Project Site No.:

Sampler Project Name: TVA Ash Spill

Station No.:

CLINC004.5RO

Date/Time Collected: Sampler's Name:

05/14/2009 12:03

County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced:

TDEC-WPC

Priority Date:

Date/Time Received:

05/14/2009

13:55

Received By:

E McCrary

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.03J	µg/L	0.029	0.2	A Bass	5/20/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit